



Croup

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AN
INAUGURAL DISSERTATION
ON
CYNANCHE TRACHEALIS,

COMMONLY CALLED

on CROUP OR HIVES.

By JOHN ARCHER, junr.

HONORARY MEMBER OF THE PHILADELPHIA MEDICAL SOCIETY,

AND

CITIZEN OF THE STATE OF MARYLAND.

1825

VENI, VIDI, VICI.

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AN
INAUGURAL DISSERTATION

FOR THE DEGREE OF
DOCTOR OF MEDICINE;

SUBMITTED TO
THE EXAMINATION

OF THE
REV. JOHN EWING, S. S. T. P. PROVOST;

THE
TRUSTEES & MEDICAL FACULTY,

OF THE

University of Pennsylvania,

And duly defended before the Board of that Institution,

On the 22d day of May, 1798.

TO
JOHN ARCHER, M. B.
OF
MARYLAND.

HONORED SIR,

IN offering you, in this public manner, the first fruits of a medical education, which has been pursued with so much pleasure under your direction, I feel a peculiar degree of satisfaction.

WHEN I solicit you to receive this small publication as a testimony of my regard, I at the same time offer you my warmest thanks, for the paternal care with which you have conducted me, from the earliest period of my existence, to the present moment.

ACCEPT, sir, my most fervent wishes for your health, for a continuance of that life which has been so eminently useful to others, and for your future happiness.

I am,

HONORED SIR,

Your sincerely affectionate

Son and Pupil,

JOHN ARCHER, junr.

JOHN ARCHER, M.D.

or

M.A., Y.L.A., LL.B.

LONDON: 1840.

In offering you in this public manner, the first fruits
of a medical education, which has been pursued with
much pleasure under your direction, I feel a peculiar
degree of satisfaction.

When I felt it you to receive this small publication
as a testimony of my regard, I felt the more anxious
and anxious to show, for the patient's sake, which
has been continued up to the last period of my
education, to the present moment.

And so, for my wife, I have sent you
a small, but a complete, of that up, which has been
for constantly, and for your future
reference.

I am, Sir,
Your obedient servant,
JOHN ARCHER, M.D.

TO
ROBERT HARRIS, A. M.
FELLOW OF THE COLLEGE OF PHYSICIANS
OF
PHILADELPHIA, &c.

MUCH RESPECTED SIR,

PERMIT me thus publicly to return you my unfeigned acknowledgments, for the friendship and politeness you have on so many different occasions shewn me.

I beg you also, sir, will receive this as a small mark of my respect; and accept my numerous wishes for your prosperity.

I am,

RESPECTED SIR,

Your very affectionate

Friend and Kinsman,

JOHN ARCHER, junr.

or
W. John Moore

with the Compt. Heat

works of his

sincere friend

The Author

INTRODUCTION.

WHEN we take a retrospective view of the disease which affords the subject of the present dissertation; whether on the pages which physicians of the highest celebrity have left behind them, or even within the narrow limits of our own immediate observation; we certainly cannot fail of being sensibly struck with the tyranny with which it has hitherto exercised its power, and the melancholy ravages it has committed upon hundreds of our species, while yet in the morning of life, notwithstanding every opposing effort of the most ingenious physicians.

ALTHOUGH I fondly cherish the pleasing hope, that the time will come (and I trust that time is not very far distant) when avenues to the grave will only be found through the medium of casualties, and old age, the uniform result of the sure and steady progress of time; I hope the reader will not conclude, that I consider myself as being able effectually to close up the passage which at present but too frequently exists, through the medium of the theme of this essay, by advancing a theory which shall lead to an uniformity of success in its treatment, or by laying down a mode of cure which shall invariably succeed.—I should rejoice were I able to present either.

THE motives which led me to make CYNANCHE TRACHEALIS the subject of my Inaugural Dissertation, were my having had some opportunities of witnessing its progress, and marking a mode of treatment, which, from its general result, has been considerably more successful than any other on the records of medicine; and should it be a means of obviating its acknowledged fatality, in a single instance, it will indeed afford me an extensive source of pleasing satisfaction.

HE who undertakes to recommend publicly a new remedy, or mode of treatment, must, at the same time, expect to have his observations frequently received with reluctance; nay, sometimes even the truth of his facts called in question. Authors and readers generally view things in different lights: the one oftentimes exaggerates, while the other frequently doubts too much. I have not exaggerated; I hope the reader will not doubt until he shall have sufficient reason.

WITHOUT a more prolix exordium, I shall now proceed to the immediate object of my Thesis. I regret much that the shortness of time allowed for preparing it, and the state of my health, prevented my rendering it more worthy the reader's attention: it is submitted with reluctance to his inspection: his liberality and candor will forgive the inaccuracies with which I am confident it abounds.

INAUGURAL DISSERTATION, &c.

NOSOLOGY perhaps does not furnish a disease which has received a greater variety of appellations than the one under consideration: It is the ACUTE ASTHMA of Dr. Millar;* the CATARRHUS SUFFOCATIVUS of Etmuller;† the MORBUS STRANGULATORIUS of Starr;‡ the ANGINA POLYPOSA, SIVE MEMBRANACEA of Professor MICHÆLIS;§ the SUFFOCATIO STRIDULA of Dr. Home;§ the CYNANCHE LARYNGEA of ELLER;¶ the CYNANCHE TRACHEALIS of Dr. Cullen,** &c. &c. It is known by the vulgar names of CROUP in Scotland; CHOCK or STUFFING in Ireland; and of HIVES in different parts of the United States.

* Millar on Asthma and Hooping Cough.

† Etmuller.

‡ Starr, Philos. Transactions, No. 495.

§ Michælis de Angin. Polyposa sive Membranacea.

§ Home on the Nature, Cause, and Cure of Croup.

¶ Eller de cogn. et curand. morb.

** Cullen's First Lines, vol. I.

FROM this variety of appellations, I have selected that of *CYNANCHE TRACHEALIS* ; not because I conceived it more proper than some of the others, but because the works of Dr. Cullen being in the hands of every one, the term must be familiar to all.

It appears to be a disease to which the younger part of the human race is in a peculiar manner obnoxious : from the unequivocal instances, however, which Dr. Rush has related of its occurrence in the adult,* (and I see no reason why, under particular circumstances, it may not appear in the adult subject) I can by no means subscribe to the opinion of those authors, who assert, that it only occurs within the first twelve years of life. I shall, however, consider myself sufficiently well supported by the concurring testimony of all writers, and from what little I have observed myself, when I say it occurs forty-nine times in children, (or perhaps a much larger majority) where it does once in the adult.

It is said to be much more frequent in its appearance during the spring and autumnal months. There is, however, no season of the year, situation, nor climate, that does not afford some distressing spectacles of this terrible malady. Altho' all situations afford proofs of its existence, there is,

* Professor Rush's MS. Lectures.

in my opinion, sufficient reason to believe it is much more frequently found in those situations, which, from their vicinity to marshes, rivers, and other bodies of water, are constantly under the influence of a cool, moistened atmosphere. Dr. Crawford mentions this disease as prevailing much in a wide plain, extending along the river Tay in Scotland, called the *Carse of Gowrie* : * this plain, we are told, has lately been dried up ; since which time the disease in that place has scarcely been known ; and I know the disease takes place, in a far greater number of instances in the low marshy lands, called the *Neck*, situated in that part of Maryland which lies between the Chesapeake Bay and Bush River, than it does in the upper lands, called the *Forrest*.

It is found in a high degree rapacious (if I be permitted the expression) of those children, who are by nature furnished with dispositions the most lively, with constitutions the most robust, and with health the most blooming.

WRITERS mostly represent it as being by far more frequent among children of the lower class ; perhaps this may be the fact ; but it is so far from being exclusively confined to the poorer children,

* Thef. Inaug. Edin. 1770.

that it is (I had almost said) a common disease in families of all ranks.

SOME writers affirm that the CROUP does not appear in children, while they are yet at the breasts of their mothers; but on the contrary we have the authority of Dr. Sauer in a letter to Dr. Michaelis, when describing this disease, as it appeared epidemic at Wertheim, in the following words, which are directly in point, viz. “ Infantes pluri-
“ mos hoc morbo correptos vidi, qui adhuc ma-
“ terno alibantur lacte.”* And Dr. Alexander, who has written an ingenious treatise on this disease, says, “ Children, while at the breast, are
“ not unfrequently attacked with it; and I have
“ known three or four instances in which it has
“ seized infants at the early period of six months
“ after birth.”†

A CIRCUMSTANCE respecting this disease has frequently struck me, that I don't find taken notice of by any writer; which is, that it seldom affects one child in a family, without appearing, at some after period, in at least some of the children, of the same common parents; this is probably owing more to a similarity of habit and constitution, than any other circumstance.

* Michaelis, page 258.

† Alexander on Croup, page 13.

ON the contagious nature of CYNANCHE TRACHEALIS, I can say nothing from my own observation; it has been believed by a few; doubted by some; and disbelieved by many. “ This kind of fore throat,” says Dr. Rosen Von Rosenstein, when speaking of the CROUP, “ has not only been spread at Stockholm; but likewise about Upsal, especially in the Rasbo parish, where, during the years 1761 and 1762, in many houses it carried off all the children; some of them died on the second day; but the greatest number on the fourth and fifth days. They vomited up a quantity of slime and pieces of membrane. Neighbouring children, also, who visited the place, got infected with the disease, and died soon after.”* This is so extraordinary a passage, that I should have been led very much to have doubted its authenticity, if Dr. Rosenstein were not a physician of such high respectability; and even believing in the authenticity of the fact, I should have been induced to believe he had confounded it with CYNANCHE MALIGNA; for as the CYNANCHE TRACHEALIS is very far from being uniformly contagious, I can very easily conceive, that the operation of the same causes might produce it in an hundred different instances, even within the limits of a small neighbourhood. I say I should have doubted this paragraph of Dr. Rosenstein’s; not

* Sparman’s translation of Rosenstein, page 294.

because I conceived it a thing impossible, or highly improbable, but because I had never seen it contagious myself, and because authors of much veracity had declared to the contrary. Dr. Ruty mentions this disease as being *epidemic* in Ireland;* but does not say it was contagious. Dr. Barton lately informed me, that in the latter end of the year 1793, the HIVES prevailed much in Philadelphia; and from several unequivocal cases, there was no doubt left with him as to its contagious nature.

PHYSICIANS have cavilled not a little concerning the inflammatory nature of CYNANCHE TRACHEALIS; some considering it as a well marked inflammatory disease, while others view it as entirely unconnected with even a common symptom of inflammation. As I do conceive it, in many instances, altogether *symptomatic* of a general diseased action of the sanguiferous system—and as I consider it, in a variety of instances, by no means less frequent, a *local* and *primary* disease of the Trachea, with the different phenomena of fever, *mere symptoms*; I am naturally led to consider it in two different points of view, and with this intention, for the sake of perspicuity, I shall treat of each separately, under the heads of,

1. CYNANCHE TRACHEALIS SYMPTOMATICA, &
2. CYNANCHE TRACHEALIS IDIOPATHICA.

* Ruty's Chronological History of the Weather.

I. CYNANCHE TRACHEALIS SYMPTOMATICA.

COULD we produce no proofs in support of this disease being frequently the mere consequences of excessive morbid action in the arterial system at large, we should be led to suppose nothing more probable, from the acknowledged truth of the following positions, 1. That from a variety of causes, almost every part of the body is liable to debility—2. That this debility is as uniformly accompanied with increased excitability—3. That this increased excitability, will be readily changed into morbid excitement, by causes of an exciting nature—and, 4. That this increased excitement is always most violent, where the excitability is most abundantly accumulated.—I say, had we no further proofs of CROUP, being oftentimes a mere symptom of general disease, than these important and firmly established laws of the animal œconomy, we should be warranted in concluding it a thing extremely possible; but when the causes, symptoms, and mode of treating this state of HIVES, stand as such firm barriers in support of these principles; the most rigid sceptic can no longer withhold his belief.

DR. RUSH, the learned and ingenious Professor of the Institutes of Medicine, &c. whose authority is

at all times of the most superior kind, considers it as an inflammatory disease, and very properly ranks it as a grade of the ANGINOSE STATE OF FEVER.* Dr. Frank has emphatically called it TRACHEITIS;† and Dr. Darwin, whose ingenuity is admired by all, has called it PERIPNEUMONIA TRACHEALIS;‡ this term, as shewing its inflammatory nature, is very good; but within itself, it is undoubtedly exceptionable.

IN support of the inflammatory nature of this disease, Dr. Rush relates the case of Dr. Foulke, in whom a true CYNANCHE TRACHEALIS occurred from a translocation of Rheumatism.¶

MUCH has been said against its being an inflammatory disease, because dissections so seldom discover any marks of inflammation. There are, however, dissections on record to prove that inflammation is sometimes found;§ but even if no marks of inflammation were found on dissection, it would not, in my opinion, go in the smallest degree to prove the contrary; for I can very easily conceive,

* Rush's Inquir. and Observ. vol. 4.

† Frank de curand. homin. morb. Epitom. Liber II. page 137.

‡ Darwin's Zoonomia, part II. vol. I. page 245.

¶ Professor Rush's MS. Lectures.

§ Home on Croup. Alexander on Croup. Bailie's Morbid Anatomy. Also, a paper in the Mem. Lond. Med. Society, by Mr. Field, &c.

(and nothing indeed appears to me more probable) that the vessels may be so far relieved by an effusion, that not even the vestige of such a state shall be left behind. Now we know very well, children seldom die of this disease, until the vessels have in some instances nearly, and in others entirely, relieved themselves by effusion; of course are opened only in this situation. Could we by any means have a view of the interior of the trachea, before this effusion has taken place, I make not the smallest doubt but we should in many instances find inflammation accurately marked.

DEFINITION.

I WOULD define this state of CYNANCHE TRACHEALIS to be a fever, accompanied with a stridulous respiration, sonorous cough, and with scarcely any apparent tumor or inflammation in the fauces.

SYMPTOMS.

IN the generality of cases, this state of HIVES is ushered in with the usual phenomena of fever; such as slight shiverings, alternated with heat, languor, and other symptoms, indicating the presence of a febrile state of the system; a slight degree of hoarseness follows, accompanied with a dry cough,

unattended for the most part with expectoration ; and the whole bears so striking a similarity to a common COLD as to be almost universally mistaken for one.

THUS this insidious disease advances ; the tongue becomes white ; appetite is lost ; respiration much hurried ; and the PULSE, which Dr. Rush has elegantly called the INDEX of the system,* when resorted to for information, seldom fails discovering to the physician, that a *wrong action* is going on in the blood vessels. There is commonly a degree of foreness complained of about the larynx, but very seldom attended with swelling or inflammation ; deglutition is scarcely at all affected ; much restlessness and anxiety prevail ; eruptions sometimes appear on different parts of the body ; voice is shrill and sharp ;† the face becomes flushed and turgid with blood ; hoarseness and cough advance in violence ; the latter is followed by a sound so peculiarly shrill, that I can compare it to nothing more aptly than a note emitted from a highly toned instrument. The muscles of the abdomen and thorax are thrown into such violent action by the respiring efforts of the patient, that no doubt is left as to the existence of a mechanical obstruction in the

* Professor Rush's MS. Lectures.

† Vox acuta, clangosa, sibilans. BOERHAAVE.

trachea. The sound emitted during inspiration has been compared to the croaking noise made by a young hen,† to the crowing of a cock,|| and to the barking of a dog § or fox. I think it resembles the sound of air forcibly drawn through a small aperture, more than any thing I know. Eyes become languid and hollow ; tongue and throat dry and parched. Respiration is evidently much worse by paroxysms ; this is most probably owing to the irritation of the foreign membrane in the trachea, exciting the muscles of the glottis into a spasmodic action ; which, by still farther diminishing the opening through the rima glottidis, is necessarily followed by respiration more laborious, and that after intervals of less difficulty.

THUS this truly distressing disease proceeds in its melancholy career, and is succeeded by a train of symptoms, which only add to the well founded alarm of parents and attendants. The countenance, in some instances, becomes pallid, in others it puts on a full and livid hue, owing to the returning blood being denied a free passage through the lungs to different parts of the body from the right side of the heart, in consequence of an almost totally obstructed respiration. The patient becomes

† Michaelis de Angina Polypofa, &c.

|| Home's Inquiry, &c.

§ Rush's Inq. and Observ. vol. I.

drowsy, but is prevented sleeping from the violent exertions of the respiratory organs; the system becomes exhausted; the pulse languid and tremulous; coughing can no longer be effected; the eyes are overspread with a pellicle of a glairy appearance; convulsions frequently come on, and the unhappy sufferer expires under all the phenomena of actual strangulation.

SUCH is the general rise, progress, and termination of the CYNANCHE TRACHEALIS SYMPTOMATICA, though it not unfrequently attacks with all the suddenness and alarming violence of an apoplectic paroxysm; and this most generally while under the pleasing influence of refreshing sleep.

THIS disease runs its course in different periods of time; it often destroys the patient in four and twenty hours from the first attack; more frequently it terminates in two, three, and four days; and, if we believe some authors, it is protracted even twelve and fourteen days. "Totus morbi," says Dr. Sauer, "decursus raro ultra 2. 3. nunquam ultra 4. diem protractus est. Plurimi secundo jam peribant die."*

THE immediate cause of these grievous symptoms, dissections have proven to be in the trachea,

* Michaelis de Angina Polyposa, &c. page 258.

commencing from above, and proceeding down even into its most minute ramifications. The largest quantity of the effused fluid has been, I believe, most generally found on the posterior surface of the aspera arteria, where the parts are entirely membranous, and plentifully supplied with excretory ducts, for the passage of secreted mucus.

MANY different opinions are held respecting the nature of the preternatural membrane, found lining the interior of the trachea; for while some consider it as inspissated mucus,* others contend that it is coagulable lymph;† and Dr. Caldwell, who thinks it different from both mucus and coagulable lymph, supposes it to be a substance *sui generis*.‡ Decisive experiments, I believe, have never been made to prove what it is. It is a point of controversy, on which I feel myself wholly unprepared to decide. I am far, however, from supposing it “a substance *sui generis*,” but I can, without the smallest difficulty, conceive, that it may at one time be inspissated mucus, and at ano-

* Home's Inquiry, &c.

Dr. Geo. Monro's Thes. Inaug. Edinb. 1786.

Dr. Davidson's Inaug. Dissert. Philadelphia, 1794, &c.

† Frank de curand. homin. morb. epitom. liber 2. p. 106.

Dr. Crawford's Thes. Inaug. Edinb. 1770.

Dr. Alexander on Croup.

Professor Rush's MS. Lectures, &c.

‡ Inaug. Dissertation, Philadelphia, 1796.

ther coagulable lymph. We have analogies in favour of each, in different parts of the system, under certain circumstances.

DIAGNOSIS.

THIS disease so much resembles a common COLD in its commencement, that it has almost uniformly been mistaken for one. It may, however, be distinguished from a COLD, by being most generally unattended with sneezing, and defluxions from the eyes and nose, and by the CROUP being accompanied with a peculiar sonorous cough, and a shrill, sharp voice. As it advances, every doubt is removed.

IT cannot be mistaken for HOOPING COUGH. It is much more seldom contagious than that disease. HOOPING COUGH is attended with paroxysms very evident and violent, and during the intermissions, is not attended with the stridulous respiration of the HIVES.

A VIEW of the internal fauces, will readily satisfy the most superficial observer, that it is neither CYRANCHE TONSILLARIS, nor MALIGNA: they are accompanied with much pain, and difficulty of swallowing from the inflamed and tumid state of the tonsils; and are not attended with the croupy inspiration.

REMOTE CAUSES.

THESE are all such as induce debility, either directly, or indirectly.

AMONG those which act directly, are,

1. COLD. Cold, especially when combined with moisture, I believe to be by far the most frequent remote cause of CYNANCHE TRACHEALIS. Hence we find it more frequently occurring in those situations, and seasons, which afford a cold, damp atmosphere. With the general debilitating effects of cold, it has a particular local action on the trachea.

2. PRECEDING DISEASES, as Small-Pox, Meazles, Catarrhal affections, Hooping Cough, and Aphthæ—they all produce a debility, that disposes much to CYNANCHE TRACHEALIS.

OTHER causes, by acting directly, may predispose to this disease; but those I have mentioned are much the most common.

THOSE causes which act indirectly in predisposing to the disease, are,

1. HEAT.

2. **FATIGUE**, whether induced by bodily exercise, or excessive crying, predisposes the system to an attack of this disease. Crying acts both generally and locally.

3. **CONTAGION**. This I rank as a remote cause; not from my own observation, but upon the authorities of Dr. Rosenstein, and Professor Barton.*—&c. &c.

PREDISPOSING CAUSE.

THE predisposing cause of this disease, as well as all other febrile diseases, as fully illustrated by Dr. Rush,† is—**DEBILITY**.

EXCITING CAUSES.

THE exciting causes are stimuli of all kinds, as

1. **HEAT**. Heat, succeeding cold, I believe to be much the most frequent exciting cause of **CYNANCHE TRACHEALIS**.

2. **CONTAGION**.

3. **DENTITION**—may very properly be mentioned here.

* See a preceding page. † Rush's Works.

4. A SALINE ATMOSPHERE, when this disease occurs near the sea coast, is mentioned by Dr. Home, as a cause.*

IN fact, any thing, which will excite the system into action, may, with propriety, be ranked under the head of exciting causes.

PROXIMATE CAUSE.

VARIOUS, indeed, have been the sentiments of authors, respecting the proximate cause of CYNANCHE TRACHEALIS; various, however, as they have been, none appear to me, by any means satisfactory. I can consider the proximate cause, and disease, in no other light, than as different terms, expressive in the end of the same thing; for if we define the proximate cause of a disease, we have a definition of the disease itself; with this difference alone, that in our definitions of diseases, we include the most prominent effects of their proximate cause. Can we then suppose this state of CYNANCHE TRACHEALIS to consist in an increased secretion, or in a membrane formed in the trachea, &c.? By no means. From our view of the subject, these will, certainly, appear to be no more than mere *effects* of the disease, or, in other words, of the proximate

* Home's Inquiry &c. page 40.

cause. Those physicians, therefore, who will now hold forth such proximate causes, are, in my opinion,

“ Just like the Indian, whose untutored mind,
“ Sees God in clouds, or hears him in the wind.”

POPE.

FROM what I have said, and as I have given a description of the disease, the reader will no doubt suppose I am not going to give any proximate cause : I certainly think it unnecessary ; yet, as it is so customary, I flatter myself, he will, with me, view the proximate cause of this state of CROUP, as consisting in a preternatural excitement, accompanied with irregular, or convulsed action in the arterial system, but determined, in a more particular manner, to the trachea, and its bronchial ramifications.

PROGNOSIS.

THERE is perhaps no way, in which physicians have more frequently exposed themselves to the contempt and ridicule of the world, than in the prognosis of diseases. They should avoid deciding positively, as to the event of any disease ; “ For it is impossible,” says Dr. Rush, “ in acute diseases, to tell where life ends, and where death begins. Hundreds of patients have recovered, who have

been pronounced incurable, to the great disgrace of the profession.”*

MORE danger is always to be apprehended, when this disease attacks suddenly and violently. The greater the fever, and the more difficult the respiration, the more hazardous are we to esteem the event. Should the reverse of these occur, with a cough attended with expectoration; especially should they take place after the use of the medicines to be hereafter recommended; we may give encouragement on good grounds. I should always be backward in pronouncing an unfavorable prognostic, unless symptoms of the most extreme danger appeared; such as quick, short, and difficult respiration; inability to swallow; weak, tremulous pulse; fainting; coldness of the extremities, and convulsions.

METHOD OF CURE.

IN proceeding to the mode of treating this state of CYNANCHE TRACHEALIS, our indications will naturally be—

1. To moderate and remove the fever.
2. To remove the preternatural membrane in the trachea.

* Rush's Inq. and Observ. vol 1.

3. To prevent a return of the disease.

To answer the *first* intention, the most effectual remedy is,

I. BLOOD-LETTING. All authors concur in the propriety of using the LANCET ; and here I cannot but regret the mistakes parents have been led into, by considering this disease as nothing more than a common COLD ; they delay taking the advice of a physician until the disease has increased in violence, and relieved itself, to a considerable degree, by a discharge, which, in a great measure, blocks up the very passage through which life is carried on. There is seldom any call for this invaluable remedy after the formation of the membrane ; of this, however, I will by no means speak positively ; for we must, at all times, judge of this from existing circumstances. It should be used in the earliest stages of the disease ; the frequency of its repetition, and the quantity of blood to be drawn, must, at all times, be left to the discretion of the physician : all he will have to do, will be, to attend to the pulse, and state of the system ; these done, it will be impossible for him to err.

2. PURGES. These, as a remedy for reducing action in the system, are acknowledged by all ; but in this disease, so much can be effected by the use

of the LANCET, that those which will keep the bowels moderately open will be sufficient, and for this purpose, MAGNESIA, JALAP, EPSOM or GLAUBER'S SALTS, would be sufficient; but I should much rather prefer CALOMEL in small doses, for at the same time that it acts as a laxative, it determines to the surface.

3. DIAPHORETICS. These should be of a kind which will stimulate as little as possible. TARTARIZED ANTIMONY exhibited in such doses as will keep up a moderate degree of nausea, will answer the intention extremely well; it may be combined with a small quantity of NITRE.

SUCH are the evacuants necessary for reducing the febrile state of the system, particularly during the commencing period of the disease.

BLISTERS have been warmly recommended in CROUP. The intention of diverting inflammation from an internal to an external, less dangerous part, is undoubtedly a good one. The remedies already laid down, will be sufficient during the first period of the disease, the only time blisters promise to do any service. In the latter stage I do not hesitate to say they are useless.

THE *second* indication is, to remove the preternatural membrane from the trachea and its ramifications, the bronchiæ. To effect the removal of this membrane, has long been looked upon as an important desideratum in the cure of CYNANCHE TRACHEALIS. It is at this time (at least in the country) physicians are generally called upon to be spectators of the dreadful sufferings of the tender part of the human race: 'tis then, and not till then, when the unfortunate sufferer is gasping for breath, and suffocation appears to be almost inevitable, that medical aid is requested.

FOR the separation and ejection of this membrane, many different methods have been proposed; but I am sorry to add, they have been but too frequently ineffectual; as most authors candidly acknowledge *it* impracticable.

FROM what little opportunity I have had of observing myself, and from the extensive experience of others; I take particular pleasure in recommending a medicine, which has the surprising powers of dislodging the foreign membrane, that lines the interior parietes of the trachea. When I recommend this medicine, I am warranted in recommending it with confidence; for its good effects support my recommendations, and I do conceive that if administered with that regularity and attention, necessary

in the exhibition of all medicines, it will so often succeed, that others will not be backward in extolling it as highly as I have myself. The medicine I allude to is the *SENECA SNAKE ROOT* of our country.* It was *first* used by my FATHER, about seven or eight years ago, in a well marked case of *CROUP*, far advanced, and with success; after the common remedies had been sedulously administered, without the smallest degree of relief: since that time it has been repeatedly used by him, others, and myself with a similar result. I am induced to believe, it will scarcely ever fail, when given in the forming state of the membrane; and I am confident it will succeed in a majority of cases after a complete formation of the membrane. The decoction of the root, is the manner in which I have generally seen it used; the strength must be determined by the physician; it must be so strong, as to act sensibly on his own fauces, in exciting coughing, &c. for in this disease the larynx in a great measure loses its natural sensibility.† Half an ounce of the root of *SENECA*, bruised, and simmered in a close vessel, in half a pint of water, until reduced to four ounces, will probably in most cases be sufficiently strong. A teaspoonful of this to be given every half hour, or hour, as the urgency of the symptoms may demand;

* *Polygala Senega* of Linnæus.

† Dr. Geo. Monro's Thes. Inaug. Edinb. 1786.

and during these intervals a few drops occasionally, to keep up a sensible action of the medicine in the fauces, until it act as an emetic or cathartic; then repeated in small quantities, and so frequently as to keep up a constant stimulus in the mouth and throat. By these means, in the course of two, four, six or eight hours, a membrane is oftentimes discharged by the mouth, one, two, and three inches in length; sometimes it is swallowed and voided by stool. Patients who use the medicine should not be permitted to drink any thing whatever, for some minutes after each dose. The reason must be obvious to all. The powder has lately been used,* in doses of four or five grains, mixed in a little water, with effects equally pleasing as the decoction, and more so, unless the latter have been carefully prepared.

To account for the action of the *SENECA*, is a subject necessary to be inquired into. When taken into the mouth, and swallowed, its pungency is immediately found to be highly diffusive; it quickly excites an almost continual coughing, with repeated efforts to swallow, and promotes a plentiful secretion of saliva. In my opinion, its operation in curing *CROUP* is chiefly local. Does this consist in a discharge being excited between the membrane and the trachea, which, from being less adhesive,

* By the author's FATHER and BROTHER.

the whole is readily removed by expectoration, in consequence of the coughing, which is simultaneously induced ; or by vomiting, when the SENECA acts as an emetic ?—*Dies doceat.*

SOME will no doubt say, it acts in curing this disease merely from its emetic and diaphoretic properties. It would be sufficient for me to ask those gentlemen, why other emetics and diaphoretics will not effect the same purpose. I have in some instances seen it effect a cure, without either acting as an emetic, diaphoretic, or cathartic. Does it not then cure CYNANCHE TRACHEALIS, chiefly by acting as a *local stimulant* ?

SHOULD the disease be far advanced, and danger appear pressing, CALOMEL, as co-operating with the SENECA, may be used advantageously ; it should be given freely internally, and mercurial frictions applied externally to the throat and adjacent parts.

IF the limits of this dissertation permitted, I could relate many unequivocal cases of the disease, in which the use of the SENECA was followed by the happiest effects. I shall, therefore, only detain the reader with a recital of one or two.

CASE I.

IN the autumn of 1796, I visited Miss F—— L——, about three years of age, of a full, gross habit. She had been seized, two days previous to my visit, with the usual phænomena of symptomatic Croup. Her breathing was now wheezing, and very laborious; inspiration croupy; cough dry and sonorous; pulse quick and frequent; but discovered scarcely any inflammation; anxiety and restlessness were extreme. I immediately ordered the decoction of SENECA, as directed in a former page; and the use of CALOMEL to open her bowels. The SENECA, quickly excited coughing, with repeated attempts to swallow, and retchings to vomit. In the course of an hour or two, a quantity of viscid phlegm was expectorated, and in a few hours, pieces of crusted membrane were discharged; a much more easy respiration took place, and in sixteen or eighteen hours I had the pleasure of seeing her as well as usual.

CASE II.

IN the spring of 1796, I saw the son of Mr. J—— E——, aged three years. He had had the HIVES, about six months before, and was perfectly relieved by the use of SENECA, and CALOMEL. The stridulous respiration was distinctly marked, and the

parents alarmed, applied as soon as they observed this, as they said, "certain token of danger." I did not find it necessary to do more than open the bowels, and make use of the *SENECA*; which perfectly restored him in 24 hours.

THE *third* object of our attention, is to prevent a return of the disease.

To fulfil this intention, we should, in the first place, if necessary, endeavour to restore the strength of the patient; and, for this purpose, a decoction, or vinous infusion of the *PERUVIAN BARK*, together with a diet accommodated to the state of the system, will at all times be sufficient. The patient should be removed from the place where the disease was received, (if the state of the atmosphere, from its vicinity to marshes or saline waters, be suspected as a cause of the disease) to a pure and dry air. The bowels should be kept open by the occasional use of a little *CALOMEL*; and possibly a moderate perspiration kept up by the use of the warm bath, as recommended by Dr. *Monro*, might be attended with advantage.*

WITH this I leave the *CYNANCHE TRACHEALIS SYMPTOMATICA*, and proceed to the consideration of the *CYNANCHE TRACHEALIS IDIOPATHICA*.

* Dr. George *Monro's* Thes. Inaug. Edin. 1786.

2. CYNANCHE TRACHEALIS IDIOPATHICA.

THAT there is a state of CYNANCHE TRACHEALIS, of frequent occurrence, purely *local*, and independent of any general affection whatever, is in my opinion, a truth sufficiently well established.

CHILDREN appear to abound with the different fluids in a much larger proportion than the adult, and all their excretions are very copious, particularly from the glands, which abundantly exist on the internal surface of the trachea, and from its ramifications, the bronchiæ. Now it will, by no means, be a difficult matter to conceive that this mucus may, from the more liquid parts being partly absorbed, and partly dissipated by the air of respiration, become consolidated in the form of a perfect membrane; and accordingly, I believe it to be a fact, upon which we may with safety rest our belief.

“ THE vessels of the trachea and bronchiæ,” says Dr. Rush, “ always abound with a thin mucus, which is poured into them, in proportion as they are irritated by inflammation, or the action of the external air. Children abound with a greater quantity of fluids in these parts than adults, and when it is accumulated in the

“ trachea and bronchiæ in a greater quantity than
 “ ordinary, it is easy to conceive in what manner
 “ it is converted into a membrane after its more
 “ fluid parts are dissipated. We have an analogy
 “ of this in the nose. Were the passages of this
 “ organ less within our reach, it is probable a
 “ membrane resembling that found in the trachea,
 “ would be found in it every four and twenty
 “ hours,” &c. †

AN increased secretion of mucus, whether from an increased action or relaxation in the vessels of the part, may be called in to account for the presence of mucus in the trachea and bronchiæ, without advancing opinions, by any means hazardous. I believe, however, that even the ordinary secretion of mucus, if retained, either from inattention or inability to evacuate it, will, from the more fluid parts being removed, oftentimes be sufficient to account for the disease. Each of the three ways have, I am confident, produced the membrane in the trachea.

THE fever in this state of CYNANCHE TRACHEALIS, is by no means a uniform occurrence, and when it does appear, instead of being the *primary* affection, is in reality a mere subsequent *effect*. Dr. Sauer, in a letter to Professor Michælis says, “ Fe-

† Letter to Dr. Millar.

“ *bris initio nulla;*”* and, “ I acknowledge,” says Dr. Rush, “ that I have generally seen both “ species that have been mentioned, (speaking of the *Cynanche Trachealis spasmodica*, and *humida*) “ without inflammatory symptoms, and sometimes “ without fever, especially in the first stage of “ the disorder.”† Phlegm is sometimes heard evidently to rattle in the trachea and bronchial vessels, but more frequently a cough, sometimes moist, at other times dry, accompanied with a wheezing, difficult breathing, are first observed; the voice becomes harsh and shrill, appetite is seldom impaired, and during every respite that may occur to the labored and hurried respiration, the patient appears, even in very advanced periods of the disease, to be cheerful, lively, and nearly free from complaint.

As the disease advances, breathing becomes difficult in the extreme; inspiration is in every respect as described in the symptomatic state. The cough is now dry and sonorous; a degree of soreness is complained of about the larynx; deglutition is scarcely affected; the face puts on a full, flushed appearance; heat and thirst are considerable; pulse quick and frequent, but seldom discovers much hardness, fullness, or tension.

* *Michælis*, page 258.

† *Rush's Inq. and Observ.* vol. I.

CASE.

IN the winter of 1795, I saw the servant child of Mr. S—— L——. She had been, for two days, observed to have a wheezing, difficult respiration; peculiar dry hoarse cough; but as no symptom of fever preceded, or attended, as her appetite was not impaired, and as she appeared nearly as lively and cheerful as usual, no alarm was excited. These symptoms, however, advanced to such a pitch of violence on the third day, that death appeared to be pointed out, as the inevitable termination of the disease. The peculiar inspiration which attends this complaint, and which most authors view as a pathognomonic symptom, was very striking in the present case. I immediately exhibited an emetic; but without any relief. I then purged her with CALOMEL, and gave the SENECA in the usual manner. In eight or ten hours there was considerable relief to the laborious breathing, and scarcely any expectoration was observed; in eighteen or twenty hours, pieces of white membrane were voided by stool; and, in thirty hours, I was pleased to leave her as well as usual.

I SHALL here take the liberty of reciting an extract from a letter, I, a few days since, received from my brother, Dr. Thomas Archer.

“ I PERFECTLY agree with you, in supposing there are two states of CYNANCHE TRACHEALIS; for I have witnessed the rise, progress and termination of the disease in many cases, entirely free from fever, and vice versa,

“ I HAVE in (I may say) numberless instances effected a cure of CROUP, by SENECA alone; and I have lost many children who were treated in the common way.

“ P—— T—— Esquire's daughter, about four years old, was seized with the usual symptoms of CROUP: in 36 hours after seizure, I was sent for, and found her laboring under the most violent symptoms of that disease, a dry, sonorous cough, without expectoration. The muscles of the thorax and abdomen were thrown into violent convulsive actions, by the efforts of difficult respiration. Pulse natural, and appeared hurried, chiefly from the difficulty of breathing. An ounce of the root of SENECA bruised, was simmered from a pint to half a pint of water; of this a teaspoonful was given every fifteen or twenty minutes. In less than an hour, a discharge of viscid phlegm took place, in large quantities; respiration became more natural, and in a few hours the stridulous breathing was entirely removed. Before I left her, which was in 24

hours after seeing her, she was up, and playing with her playmates.

“ I WOULD not” (he adds) “ give an ounce of SENECA as a chance in the cure of CROUP, for all the *Emetic Tartar*, *Mercury*, and *Cantharides* in the United States.”

ONIONS, and GARLIC, in different forms, may be given advantageously; also strong COFFEE, as recommended by Dr. Barton.*

OUR *next* indication is, to prevent a return of the disease.

IF the patient be much reduced by the length, or violence of the disease, a decoction, or vinous infusion of PERUVIAN BARK, with a generous diet, may be allowed; and the patient should be removed into a dry, pleasant atmosphere.

WITH this then, I finish my Inaugural Dissertation; but before I close it entirely, I beg you, ILLUSTRIOUS PROFESSORS, who have so eminently distinguished yourselves in teaching the science of

* Essay towards a Materia Medica.

medicine, in its different extensive branches, and from whom I am now about to receive the highest honors of the profession, will accept my most cordial wishes for your happiness; and be assured, that for the many instances of friendship you have on many occasions shewn me, as well in a private as public capacity, I shall ever retain a heart-felt remembrance.

Dum juga montis aper, fluvios dum piscis amabit,
 Dumq: thymo, pascentur apes, dum rore cicadæ;
 Semper honores, nomenaq: tua, laudesq: manebunt.

VIRGIL.

THE END.

To these succeed the more distressing symptoms of short, quick and difficult breathing ; the eyes become languid, sunk, and deadly ; a cold clammy sweat breaks out ; the pulse becomes weak, trembling, and almost imperceptible, when the miserable patient expires from actual suffocation.

CAUSES.

THE causes of this state of Croup, are, whatever disposes to a more plentiful secretion of mucus ; such as,

1. INFANCY. Hence its frequent occurrence at this period of life.

2. COLD, and Moisture.

3. A SALINE ATMOSPHERE.

4. DENTITION, &c. &c. &c.

DIAGNOSIS.

IN the Diagnosis of this state of *Croup*, it will be sufficient to distinguish it from the former, and in this, there will be no kind of difficulty. A history of the symptoms will always inform us whether it commenced with fever ; and attention to the pulse

will let us know, whether an inflammatory action exist in the blood vessels; if neither, we may with confidence conclude it to be of the idiopathic kind.

As we sufficiently well know, from what has been already said, in what this state of HIVES consists, I shall forbear detaining the reader with the proximate cause, for it would be nothing more than *mere repetition*.

METHOD OF CURE.

IN the treatment of this state of CYNANCHE TRACHEALIS, our indications must be,

1. To remove the mucus, or dislodge the membrane from the aspera arteria, and its ramifications.

2. To prevent a return of the disease.

IN order to fulfil the *first* intention, I am of opinion, nothing more will be necessary, than to administer the decoction of SENECA, as directed in a former part of this essay. It will generally be sufficient, I am confident, without any other medicine. The use of MERCURY may, however, as in the symptomatic kind, be sometimes necessary; for, in advanced stages of the disease, all our efforts combined, are sometimes ineffectual in affording relief.

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